

FORM PTO-1390 (Modified)  
(REV 11-98)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

## TRANSMITTAL LETTER TO THE UNITED STATES

112740-270

DESIGNATED/ELECTED OFFICE (DO/EO/US)

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

CONCERNING A FILING UNDER 35 U.S.C. 371

09/914414

INTERNATIONAL APPLICATION NO.

PCT/DE00/00539

INTERNATIONAL FILING DATE

25 February 2000

PRIORITY DATE CLAIMED

26 February 1999

TITLE OF INVENTION

METHOD FOR CONTROLLING THE SELECTION OF BASE STATIONS IN A CELLULAR RADIO  
TELECOMMUNICATION SYSEM,

APPLICANT(S) FOR DO/EO/US

Egon Schulz

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

## Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☒ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☒ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

Submission of Drawings - Figures 1-2 on two sheets

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ATTORNEY'S DOCKET NUMBER

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21. The following fees are submitted:

**BASIC NATIONAL FEE ( 37 CFR 1.492 (a) (1) - (5)) :**

- ☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$1,000.00
- ☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00
- ☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$710.00
- ☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00
- ☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00

**ENTER APPROPRIATE BASIC FEE AMOUNT =****CALCULATIONS PTO USE ONLY**

\$860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).

\$0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	15 - 20 =	0	x \$18.00
Independent claims	1 - 3 =	0	x \$80.00
Multiple Dependent Claims (check if applicable).			<input type="checkbox"/>

\$0.00

**TOTAL OF ABOVE CALCULATIONS =**

\$860.00

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable).

☐

\$0.00

**SUBTOTAL =**

\$860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).

\$0.00

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Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).

☐

\$0.00

**TOTAL FEES ENCLOSED =**

\$860.00

Amount to be:

refunded

\$

charged

\$

☒ A check in the amount of \$860.00 to cover the above fees is enclosed.

☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **02-1818** A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

William E. Vaughan (Reg. No. 39,056)  
Bell, Boyd & Lloyd LLC  
P.O. Box 1135  
Chicago, Illinois 60690

SIGNATURE

William E. Vaughan

NAME

39,056

REGISTRATION NUMBER

August 27, 2001

DATE

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Submission of Drawings - Figures 1-2 on two sheets

09/914414

PCT/DE00/00539

518 Rec'd PCT/PTO 27 AUG 2001  
112740-270

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Multiple Dependent Claims (check if applicable).			<input type="checkbox"/>

**\$0.00****TOTAL OF ABOVE CALCULATIONS =****\$860.00**

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+

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NAME

39,056

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August 27, 2001

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BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5

**PRELIMINARY AMENDMENT**

APPLICANT: Egon Schulz DOCKET NO: 112740-270  
SERIAL NO: GROUP ART UNIT:  
EXAMINER:  
INTERNATIONAL APPLICATION NO: PCT/DE00/00539  
10 INTERNATIONAL FILING DATE: 25 February 2000  
INVENTION: METHOD FOR CONTROLLING THE SELECTION OF BASE  
STATIONS IN A CELLULAR RADIO  
TELECOMMUNICATIONS SYSTEM

15 Assistant Commissioner for Patents,  
Washington, D.C. 20231

Sir:  
Assistant Commissioner for Patents  
20 Washington, DC 20231

**PRELIMINARY AMENDMENT**

Sir:

Please amend the above-identified patent application as follows:

25 **In the Specification:**

Please replace the Specification of the present application, including the  
Abstract, with the following Substitute Specification:

SPECIFICATION

TITLE OF THE INVENTION

30 METHOD FOR CONTROLLING THE SELECTION OF  
BASE STATIONS IN A CELLULAR RADIO TELECOMMUNICATION SYSTEM

BACKGROUND OF THE INVENTION

In the terminal equipment domain of telecommunications, radio paths are  
becoming increasingly important. Cordless telephones, mobile radio terminals and the  
35 wireless connection technology "RLL" (Radio in the Local Loop) or "WLL" (Wireless

Local Loop) are well-known examples of this. With the aim of defining a standard for a high-performance and universal air interface, an air interface known as "DECT" (Digital Enhanced (formerly: European) Cordless Telecommunication) was defined at the instigation of European companies. The DECT standard is described in the documents ETS (European Telecommunication Standard) 300 175-1, ..., October 9 1992 of the ETSI (European Telecommunication Standards Institute) and is known therefrom.

A DECT system allows up to 120 simultaneous connections between base stations and mobile units, which are furthermore understood to include not only mobile terminals but also, as for example in the wireless connection technology "Radio in the Local Loop", stationary system components which communicate with a base station via an air interface and which include the functional scope of a mobile unit. As such, up to 10 frequencies between 1.88 and 1.90 GHz are available and up to 12 simultaneous duplex voice connections (time slots, voice channels) can be implemented per frequency.

Furthermore, interworking between DECT and "ISDN" (Integrated Services Digital Network) is specified in the DECT standard. Along with the time slots (channels) at 32 kbit/s ("Full Slots") and 8 kbit/s ("Half Slots") required for voice connections, time slots with a transmission rate of 64 kbit/s provided to support ISDN are also specified.

Base stations and corresponding mobile units are generally known which, for faster data transmission of, for example, 64 kbit/s or to support DECT/ISDN interworking, support transmission rates of both 32 kbit/s "Full Slots" and 64 kbit/s "Double Slots." That is to say up to 6 channels with a transmission rate of 64 kbit/s, i.e. a maximum of 2 complete ISDN connections having two base channels "B-channel", each at 64 kbit/s, and one control channel "D-channel" at 16 kbit/s, are provided.

"Scanning" of local radio devices to determine free and occupied channels, which is carried out by all DECT devices at least every 30 seconds as a background process, is known from the DECT standard. The information determined in this way is stored in a list known as the RSSI ("Received Signal Strength Indication") list, where free channels with little interference are identified by high values and occupied channels with substantial interference are identified by low values, for subsequent

selection. If a radio cell is supplied with radio resources by two base stations, or if these base stations partially cover a common radio coverage area (overlapping of radio cells), whereby the first base station supports only "Full Slots" and the second base station both "Full Slots" and "Double Slots", a mobile station which supports both  
5 "Full Slots" and "Double Slots" and which, for example, requires the voice transmission service, i.e. a transmission rate of 32 kbit/s ("Full Slots"), requires a facility to determine which base station provides this service.

In terms of a universal telecommunications system "Universal Mobile Telecommunication System" UMTS, it is also conceivable for two base stations to  
10 supply two different telecommunications systems, for example a first base station supplies a DECT radio area and a second base station supplies a "Global System for Mobile" GSM radio area, whereby the radio coverage areas totally or partially overlap each other for the implementation of the UMTS. Mobile units which support both systems, therefore, similarly require a facility to distinguish between these base  
15 stations.

An object to which the present invention is directed is to indicate a method for controlling the selection of base stations in a cellular radio telecommunications system, in which the radio transmission resources made available in the radio telecommunications system, in particular in an RLL or WLL system, are effectively  
20 used.

### SUMMARY OF THE INVENTION

In the method according to the present invention, connection-relevant data are stored in at least one memory in at least one radio cell of a cellular radio telecommunications system by at least one radio device which supports at least one  
25 first service and one second service. Base stations signal which services they respectively support. Primary data records of base stations, which signal the support of the first service, are stored by the radio device in a first list, and secondary data records of base stations, which signal the support of the second service, are stored in the second list. The connection-relevant data are therefore stored in the lists and  
30 separated according to services. If the signaling changes, the lists are updated accordingly.

An advantage of the method according to the present invention is the storage, separated according to supported services, of the data of a number of base stations, which offer themselves as alternatives for the support of a specific service.

5 An advantage of a further development of the present invention is the guarantee that a connection is set up to the base station with the best transmission characteristics.

An advantage of another embodiment the present invention, in a further embodiment, a simplification of the method since the structuring of the list is carried out independently of measurements of the base stations.

10 An advantage of another embodiment is the simple and low-cost implementation of the method, since no additional measurements or data evaluation are required in order to determine the sequence of data records within a list.

An advantage of yet another embodiment of the present invention is the guarantee that a connection is set up.

15 Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

#### BRIEF DESCRIPTION OF THE FIGURES

20 FIGURE 1 shows a radio telecommunications system with base stations, mobile stations and a network termination designed as a mobile station.

FIGURE 2 shows a flow diagram of the method for selecting base stations in the radio telecommunications system according to FIGURE 1.

#### DETAILED DESCRIPTION OF THE INVENTION

25 FIGURE 1 shows a telecommunications system designed as a DECT system with radio cells PC1 and PC2 designed as picocells. Information is transmitted, in each case, via a DECT air interface designed according to the DECT standard, via which the "DECT radio channel" wireless transmission medium is accessed through a combination of FDMA, TDMA and TDD access methods (Frequency Division Multiple Access / Time Division Multiple Access / Time Division Duplex). Ten  
30 carrier frequencies, each with a channel spacing of 1.728 MHz, are available in the frequency range between 1880 MHz and 1900 MHz (FDMA), whereby the time frame defined for each carrier is divided up into 24 time slots or channels (TDMA).



For transmitting voice data, DECT fixed parts FP11, FP21, FP22 use time slots with a transmission rate of 32 kbit/s (Full Slot), corresponding to a first service D1. Time slots with a transmission rate of 64 kbit/s, corresponding to the second service D2 (Double Slot), are used by the DECT fixed part FP22 above all for the transmission of packet data. A radio network termination RNT to which a telephone T is connected and a DECT mobile part PP can be connected in a wireless manner to the DECT fixed parts FP11, FP21, FP22 via the DECT air interface. The DECT mobile part PP and the radio network termination RNT similarly support the first service D1 of the DECT system and the second service D2 of the DECT system. The DECT mobile part PP and the radio network termination RNT store connection-relevant data of the DECT fixed parts FP11, FP12, FP21, FP22, which use "Full Slots", as primary data records in the form of a first list L1 in a first memory SP1 and connection-relevant data of the DECT fixed parts FP11, FP12, FP21, FP22, which use "Double Slots", as secondary data records in the form of a second list L2 in a second memory SP2.

Alternatively, it is also possible for the data records or lists L1, L2 to be stored in a single memory.

An alternative embodiment of the radio telecommunications system from FIGURE 1 is provided if the first service D1 is made available within a first radio cell which, for example, has a radio range according to the DECT standard, and the second service D2 is made available within a second radio cell which, for example, has a radio range according to the GSM standard, whereby the DECT radio coverage area is partially or fully covered by the GSM radio coverage area in order to enable the implementation of a universal telecommunications system, for example UMTS. In this embodiment, the case may occur wherein the type of data in the first service D1 and in the second service D2 are the same, for example voice data, but differ in terms of the different radio ranges of the radio cells in which they are made available. The primary and secondary data records are then stored according to the radio ranges in the first list L1 or the second list L2.

In the event that the types of data transmitted in the first service D1 and in the second service D2 differ from one another (e.g., first service D1: voice data, second service D2: packet data) and are made available in radio cells with different radio ranges, the primary and secondary data rates can be stored in the first list L1 or second

list L2 according to the radio range or on the basis of the service D1, D2 which is provided.

In FIGURE 2, the method for selecting base stations is described with reference to a flow diagram, the method being carried out in an arrangement according to FIGURE 1 between the DECT fixed parts FP11, FP21, FP22, the DECT mobile part PP and the radio network termination RNT.

In the initial condition, first DECT fixed parts FP21, FP22 signal to the DECT mobile part PP and the radio network termination RNT which service D1, D2 they support. In addition, the radio network termination RNT receives the signaling of the supported service D1, D2 from the second DECT fixed part FP11. In the DECT mobile part PP and the radio network termination RNT, a check is first carried out to ascertain whether signaling has taken place; i.e., whether an update of the relevant list(s) L1, L2 is required.

If this is the case, the primary data records from the DECT fixed parts FP11, FP21, FP22 signaling the support of the first service D1 are stored in the form of the first list L1 in the memory SP1, SP2 and/or secondary data records from the DECT fixed parts FP11, FP21, FP22 signaling the support of the second service D2 are stored in the form of the second list L2 in the memory SP1, SP2. The sequence of the data records stored, or to be stored, in the lists L1, L2 is derived from the sequence in which the signaling is received.

Alternatively, the data records stored or to be stored can be arranged within the list L1, L2, according to transmission characteristics of the corresponding DECT fixed parts FP11, FP21, FP22, or according to ordering criteria based on the type of data records stored or to be stored; e.g., alphabetically or numerically.

If this is not the case, i.e. an update is not required, a connection request is expected.

If the DECT mobile part PP or the radio network termination RNT wishes to set up a telecommunications connection, a first data record of the primary or secondary data record is, in each case, read from the relevant list L1, L2 in order to initiate the connection set-up according to the required service D1, D2. The associated DECT fixed part FP11, FP21, FP22 is then determined from the data record and the connection to this DECT fixed part FP11, FP21, FP22 is set up. If this connection is not established, a second (further) data record of the primary or secondary data records

is read from the relevant list L1, L2 and a connection initiation is started. If no further data record exists within the list L1, L2, the procedure restarts with the first data record of the list L1, L2.

- Alternatively, if no further data record exists, following a predefined pause  
5 time, during which the telecommunications connection set-up is temporarily impossible (e.g., interruption of the telecommunications connection set-up), the procedure can restart with the first data record.

#### ABSTRACT OF THE DISCLOSURE

- 10 In order to support the effective use of services in wireless telecommunications systems, radio devices are designed in such a way that they maintain at least two lists in which connection-relevant data of base stations are stored, separated according to the service which they support. In order to set up a connection, a base station is determined from the list according to the required service.

#### IN THE CLAIMS

- 15 On page 9, cancel line 1, and substitute the following left-hand justified heading therefor:

#### CLAIMS

Please cancel claims 1-15, without prejudice, and substitute the following claims therefor:

- 20 16. A method for controlling the selection of base stations in a cellular radio telecommunications system, the method comprising the steps of:
- operating, in at least one radio cell of the radio telecommunications system, at least one base station and at least one radio device for the purposes of wireless telecommunication;
  - 25 supporting at least one first service and one second service by the radio device;
  - storing connection-relevant data in at least one memory via the radio device;
  - signaling to the radio device, via the at least one base station, in system
  - 30 information, which service the at least one base station supports;

storing primary data records of the at least one base station, via the radio device, in the form of a first list in the memory, if the at least one base station signals to the radio device in the system information that the at least one base station supports the first service;

5 storing secondary data records of the at least one base station, via the radio device, in the form of a second list, if the at least one base station signals to the radio device in the system information that the at least one base station supports the second service; and

10 updating at least one of the first list and the second list, via the radio device, if the data of the at least one base station is modified.

17. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 16, wherein the primary and secondary data records of the at least one base station stored in the first and second  
15 lists are arranged according to transmission characteristics of the at least one base station.

18. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 16, wherein the primary and  
20 secondary data records of the at least one base station stored in the first and second lists are arranged at least according to an ordering criterion based on a type of data store.

19. A method for controlling the selection of base stations in a cellular  
25 radio telecommunications system as claimed in claim 16, wherein the primary and secondary data records of the at least one base station stored in the first and second lists are arranged in a sequence of their respective occurrence.

20. A method for controlling the selection of base stations in a cellular  
30 radio telecommunications system as claimed in claim 16, the method further comprising the steps of:

reading out a first data record, via the radio device, of the primary data records when the radio device sets up a telecommunications connection to the at least one base station which supports the first service;

5 reading out a first data record, via the radio device, of the secondary data records when the radio device sets up a telecommunications connection to the at least one base station which supports the second service;

10 reading out a second data record, via the radio device and if the connection set up fails, from one of the primary and the secondary data records in the respective lists and setting up a connection to the corresponding at least one base station via the radio device; and

restarting the read out of the first data record of the respective list, via the radio device, if no connection has yet been set up and the second data record was the last data record in the respective list.

15 21. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 16, the method further comprising the steps of:

20 reading out a first data record of the primary data records, via the radio device, when the radio device sets up a telecommunications connection to the at least one base station which supports the first service;

reading out a first data record of the secondary data records, via the radio device, when the radio device sets up a telecommunications connection to the at least one base station which supports the second service;

25 reading out a second data record from one of the primary and the secondary data records in the respective list, via the radio device and if the connection set up fails, and setting up a connection to the corresponding at least one base station via the radio device; and

30 restarting the read out of the first data record of the respective list at an end of a predefined pause time, via the radio device, if no connection has yet been set up and the second data record was the last data record in the respective list.

22. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 16, wherein the radio device is a radio network termination.

5 23. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 16, the method further comprising the step of:

allocating, given a plurality of radio cells in the radio telecommunications system, the same radio ranges to the radio cells.

10 24. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 23, wherein the radio telecommunications system operates according to the DECT standard.

15 25. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 16, the method further comprising the step of:

allocating, given a plurality of radio cells in the radio telecommunications system, different radio ranges to the radio cells.

20 26. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 25, wherein the radio telecommunications system operates according to the UMTS standard.

25 27. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 25, wherein the same type of data is transmitted in the first service and in the second service, and the first service and the second service are made available in different radio cells.

30 28. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 16, wherein different types of data are transmitted in the first service and in the second service.

29. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 28, wherein signals with the transmission rate of 32 kbit/s are transmitted in the first service, and signals with the transmission rate of 64 kbit/s are transmitted in the second service.

5

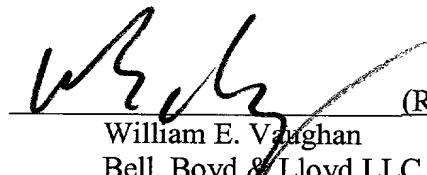
30. A method for controlling the selection of base stations in a cellular radio telecommunications system as claimed in claim 28, wherein voice is transmitted in the first service, and packet data are transmitted in the second service.

#### REMARKS

10 The present amendment makes editorial changes and corrects typographical errors in the specification, which includes the Abstract, in order to conform the specification to the requirements of United States Patent Practice. No new matter is added thereby. Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned  
15 **"Versions with Markings to Show Changes Made."**

In addition, the present amendment cancels original claims 1-15 in favor of new claims 16-30. Claims 16-30 have been presented solely because the revisions by cross out and underlining which would have been necessary in claims 1-15 in order to present those claims in accordance with preferred United States Patent Practice would  
20 have been too extensive, and thus would have been too burdensome. The present amendment is intended for clarification purposes only and not for substantial reasons related to patentability pursuant to 35 USC §§103, 102, 103 or 112. Indeed, the cancellation of claims 1-15 does not constitute an intent on the part of the Applicants to surrender any of the subject matter of claims 1-15.

25 Early consideration on the merits is respectfully requested.  
Respectfully submitted,

  
(Reg. No. 39,056)  
William E. Vaughan  
Bell, Boyd & Lloyd LLC  
P.O. Box 1135  
Chicago, Illinois 60690-1135  
Phone: (312) 807-4292

30

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Specification:**

The Specification of the present application, including the Abstract, has been amended as follows:

SPECIFICATION

TITLE OF THE INVENTION

METHOD FOR CONTROLLING THE SELECTION OF  
BASE STATIONS IN A CELLULAR RADIO TELECOMMUNICATION SYSTEM

BACKGROUND OF THE INVENTION

In the terminal equipment domain of telecommunications, radio paths are becoming increasingly important. Cordless telephones, mobile radio terminals and the wireless connection technology "RLL" (Radio in the Local Loop) or "WLL" (Wireless Local Loop) are well-known examples of this. With the aim of defining a standard for a high-performance and universal air interface, an air interface known as "DECT"

(Digital Enhanced (formerly: European) Cordless Telecommunication) was defined at the instigation of European companies. The DECT standard is described in the documents ETS (European Telecommunication Standard) 300 175-1, ..., October 9 1992 of the ETSI (European Telecommunication Standards Institute) and is known therefrom.

A DECT system allows up to 120 simultaneous connections between base stations and mobile units, which are furthermore understood to include not only mobile terminals but also, as, for example in the wireless connection technology "Radio in the Local Loop", stationary system components which communicate with a base station via an air interface and which include the functional scope of a mobile unit, whereby. As such, up to 10 frequencies between 1.88 and 1.90 GHz are available and up to 12 simultaneous duplex voice connections (time slots, voice channels) can be implemented per frequency.

Furthermore, interworking between DECT and "ISDN" (Integrated Services Digital Network) is specified in the DECT standard. Along with the time slots (channels) at 32 kbit/s ("Full Slots") and 8 kbit/s ("Half Slots") required for voice



connections, time slots with a transmission rate of 64 kbit/s provided to support ISDN are ~~therefore~~ also specified.

Base stations and corresponding mobile units are generally known which, for faster data transmission of, for example, 64 kbit/s or to support DECT/ISDN interworking, support transmission rates of both 32 kbit/s "Full Slots" and 64 kbit/s "Double Slots"; ~~that~~ Slots. That is to say up to 6 channels with a transmission rate of 64 kbit/s, i.e. a maximum of 2 complete ISDN connections ~~comprising~~ having two base channels "B-channel", each at 64 kbit/s, and one control channel "D-channel" at 16 kbit/s, are provided.

"Scanning" of local radio devices to determine free and occupied channels, which is carried out by all DECT devices at least every 30 seconds as a background process, is known from the DECT standard. The information determined in this way is stored in a list known as the RSSI ("Received Signal Strength Indication") list, where free channels with little interference are identified by high values and occupied channels with substantial interference are identified by low values, for subsequent selection. If a radio cell is supplied with radio resources by two base stations, or if these base stations partially cover a common radio coverage area (overlapping of radio cells), whereby the first base station supports only "Full Slots" and the second base station both "Full Slots" and "Double Slots", a mobile station which supports both "Full Slots" and ~~also~~ "Double Slots" and which, for example, requires the voice transmission service, i.e. a transmission rate of 32 kbit/s ("Full Slots"), requires a facility to determine which base station provides this service.

In terms of a universal telecommunications system "Universal Mobile Telecommunication System" UMTS, it is also conceivable for two base stations to supply two different telecommunications systems, for example a first base station supplies a DECT radio area and a second base station supplies a "Global System for Mobile" GSM radio area, whereby the radio coverage areas totally or partially overlap each other for the implementation of the UMTS. Mobile units which support both systems, therefore, similarly require a facility to distinguish between these base stations.

The An object of to which the present invention is therefore directed is to indicate a method for controlling the selection of base stations in a cellular radio telecommunications system, in which the radio transmission resources made available

in the radio telecommunications system, in particular in an RLL or WLL system, are effectively used.

~~This object is achieved by the features of claim 1.~~

### SUMMARY OF THE INVENTION

5 In the method according to the present invention ~~according to claim 1~~, connection-relevant data are stored in at least one memory in at least one radio cell of a cellular radio telecommunications system by at least one radio device which supports at least one first service and one second service. Base stations signal which services they respectively support. Primary data records of base stations, which signal the support of the first service, are stored by the radio device in a first list, and secondary data records of base stations, which signal the support of the second service, are stored in the second list. The connection-relevant data are therefore stored in the lists, and separated according to services. If the signaling changes, the lists are updated accordingly ~~claim 1~~.

15 An ~~essential~~ advantage of the method according to the present invention is the storage, separated according to supported services, of the data of a plurality number of base stations, which offer themselves as alternatives for the support of a specific service.

20 An ~~essential~~ advantage of ~~the a~~ further development ~~according to claim 2 of the present invention~~ is the guarantee that a connection is set up to the base station with the best transmission characteristics.

25 An ~~essential~~ advantage of ~~the further development according to claim 3 is~~ advantage of another embodiment the present invention, in a further embodiment, a simplification of the method, since the structuring of the list is carried out independently of measurements of the base stations.

~~The essential~~ An advantage of ~~the further development according to claim 4 another embodiment~~ is the simple and low-cost implementation of the method, since no additional measurements or data evaluation are required in order to determine the sequence of data records within a list.

30 An ~~essential~~ advantage of ~~the further developments according to claim 5 (without pause time) and claim 6 (with pause time)~~ advantage of yet another embodiment of the present invention is the guarantee that a connection is set up.

Further advantageous designs of the invention are indicated in the remaining subclaims.

An embodiment of the invention is explained with reference to FIGURES 1 and 2, in which: BRIEF DESCRIPTION OF THE FIGURES

5       FIGURE 1     shows a radio telecommunications system with base stations, mobile stations and a network termination designed as a mobile station.

FIGURE 2     shows a flow diagram of the method for selecting base stations in the radio telecommunications system according to FIGURE 1.

#### DETAILED DESCRIPTION OF THE INVENTION

10       FIGURE 1 shows a telecommunications system designed as a DECT system with radio cells PC1 and PC2 designed as picocells. Information is transmitted, in each case, via a DECT air interface designed according to the DECT standard, via which the "DECT radio channel" wireless transmission medium is accessed through a combination of FDMA, TDMA and TDD access methods (Frequency Division  
15   Multiple Access / Time Division Multiple Access / Time Division Duplex). Ten carrier frequencies, each with a channel spacing of 1.728 MHz, are available in the frequency range between 1880 MHz and 1900 MHz (FDMA), whereby the time frame defined for each carrier is divided up into 24 time slots or channels (TDMA).

For transmitting voice data, DECT fixed parts FP11, FP21, FP22 use time slots  
20   with a transmission rate of 32 kbit/s (Full Slot), corresponding to a first service D1. Time slots with a transmission rate of 64 kbit/s, corresponding to the second service D2 (Double Slot), are used by the DECT fixed part FP22 above all for the transmission of packet data. A radio network termination RNT to which a telephone T is connected and a DECT mobile part PP can be connected in a wireless manner to the DECT fixed  
25   parts FP11, FP21, FP22 via the DECT air interface. The DECT mobile part PP and the radio network termination RNT similarly support the first service D1 of the DECT system and the second service D2 of the DECT system. The DECT mobile part PP and the radio network termination RNT store connection-relevant data of the DECT fixed parts FP11, FP12, FP21, FP22, which use "Full Slots", as primary data records in  
30   the form of a first list L1 in a first memory SP1 and connection-relevant data of the DECT fixed parts FP11, FP12, FP21, FP22, which use "Double Slots", as secondary data records in the form of a second list L2 in a second memory SP2.

Alternatively, it is also possible for the data records or lists L1, L2 to be stored in a single memory.

An alternative embodiment of the radio telecommunications system from FIGURE 1 is provided if the first service D1 is made available within a first radio cell, which, for example, has a radio range according to the DECT standard, and the second service D2 is made available within a second radio cell which, for example, has a radio range according to the GSM standard, whereby the DECT radio coverage area is partially or fully covered by the GSM radio coverage area in order to enable the implementation of a universal telecommunications system, for example UMTS. In this embodiment, the case may occur wherein the type of data in the first service D1 and in the second service D2 are the same, for example voice data, but differ in terms of the different radio ranges of the radio cells in which they are made available. The primary and secondary data records are then stored according to the radio ranges in the first list L1 or the second list L2.

In the event that the types of data transmitted in the first service D1 and in the second service D2 differ from one another (e.g., first service D1: voice data, second service D2: packet data) and are made available in radio cells with different radio ranges, the primary and secondary data rates can be stored in the first list L1 or second list L2 according to the radio range or on the basis of the service D1, D2 which is provided.

In FIGURE 2, the method for selecting base stations is described with reference to a flow diagram, said the method being carried out in an arrangement according to FIGURE 1 between the DECT fixed parts FP11, FP21, FP22, the DECT mobile part PP and the radio network termination RNT.

In the initial condition, first DECT fixed parts FP21, FP22 signal to the DECT mobile part PP and the radio network termination RNT which service D1, D2 they support. In addition, the radio network termination RNT receives the signaling of the supported service D1, D2 from the second DECT fixed part FP11. In the DECT mobile part PP and the radio network termination RNT, a check is first carried out to ascertain whether signaling has taken place; i.e. ~~whether~~, whether an update of the relevant list(s) L1, L2 is required.

If this is the case, the primary data records from the DECT fixed parts FP11, FP21, FP22 signaling the support of the first service D1 are stored in the form of the

first list L1 in the memory SP1, SP2 and/or secondary data records from the DECT fixed parts FP11, FP21, FP22 signaling the support of the second service D2 are stored in the form of the second list L2 in the memory SP1, SP2. The sequence of the data records stored, or to be stored, in the lists L1, L2 is derived from the sequence in which the signaling is received.

Alternatively, the data records stored or to be stored can be arranged within the list L1, L2, according to transmission characteristics of the corresponding DECT fixed parts FP11, FP21, FP22, or according to ordering criteria based on the type of data records stored or to be stored; e.g., alphabetically or numerically.

If this is not the case, i.e. an update is not required, a connection request is expected.

If the DECT mobile part PP or the radio network termination RNT wishes to set up a telecommunications connection, a first data record of the primary or secondary data record is, in each case, read from the relevant list L1, L2 in order to initiate the connection set-up according to the required service D1, D2. The associated DECT fixed part FP11, FP21, FP22 is then determined from the data record and the connection to this DECT fixed part FP11, FP21, FP22 is set up. If this connection is not established, a second (further) data record of the primary or secondary data records is read from the relevant list L1, L2 and a connection initiation is started. If no further data record exists within the list L1, L2, the procedure restarts with the first data record of the list L1, L2.

Alternatively, if no further data record exists, following a predefined pause time, during which the telecommunications connection set-up is temporarily impossible (e.g., interruption of the telecommunications connection set-up), the procedure can restart with the first data record.

## Abstract

Method for controlling the selection of base stations in a cellular radio telecommunications system

### ABSTRACT OF THE DISCLOSURE

- 5 In order to support the effective use of services in wireless telecommunications systems, radio devices (~~RNT, PP~~) are designed in such a way that they maintain at least two lists (~~L1, L2~~) in which connection-relevant data of base stations (~~FP11, FP21, FP22~~) are stored, separated according to the service (~~D1, D2~~) which they support. In order to set up a connection, a base station (~~FP11, FP21, FP22~~) is determined from the
- 10 list (~~L1, L2~~) according to the required service(~~D1, D2~~).

FIGURE 2

BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

**SUBMISSION OF DRAWINGS**

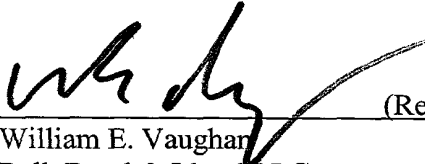
APPLICANT: Egon Schulz DOCKET NO.: 112740-270  
SERIAL NO: GROUP ART UNIT:  
FILED: EXAMINER:  
INTERNATIONAL APPLICATION NO. PCT/DE00/00539  
INTERNATIONAL FILING DATE: 25 February 2000  
INVENTION: METHOD FOR CONTROLLING THE SELECTION OF BASE  
STATIONS IN A CELLULAR RADIO TELECOMMUNICATIONS  
SYSTEM

Assistant Commissioner for Patents,  
Washington, D.C. 20231

Sir:

Applicant herewith submits two sheets (Figs. 1-2) of drawings for the above-  
referenced PCT application.

Respectfully submitted,

  
(Reg. No. 39,056)  
William E. Vaughan  
Bell, Boyd & Lloyd LLC  
P.O. Box 1135  
Chicago, Illinois 60690-1135  
(312) 807-4292  
Attorneys for Applicant

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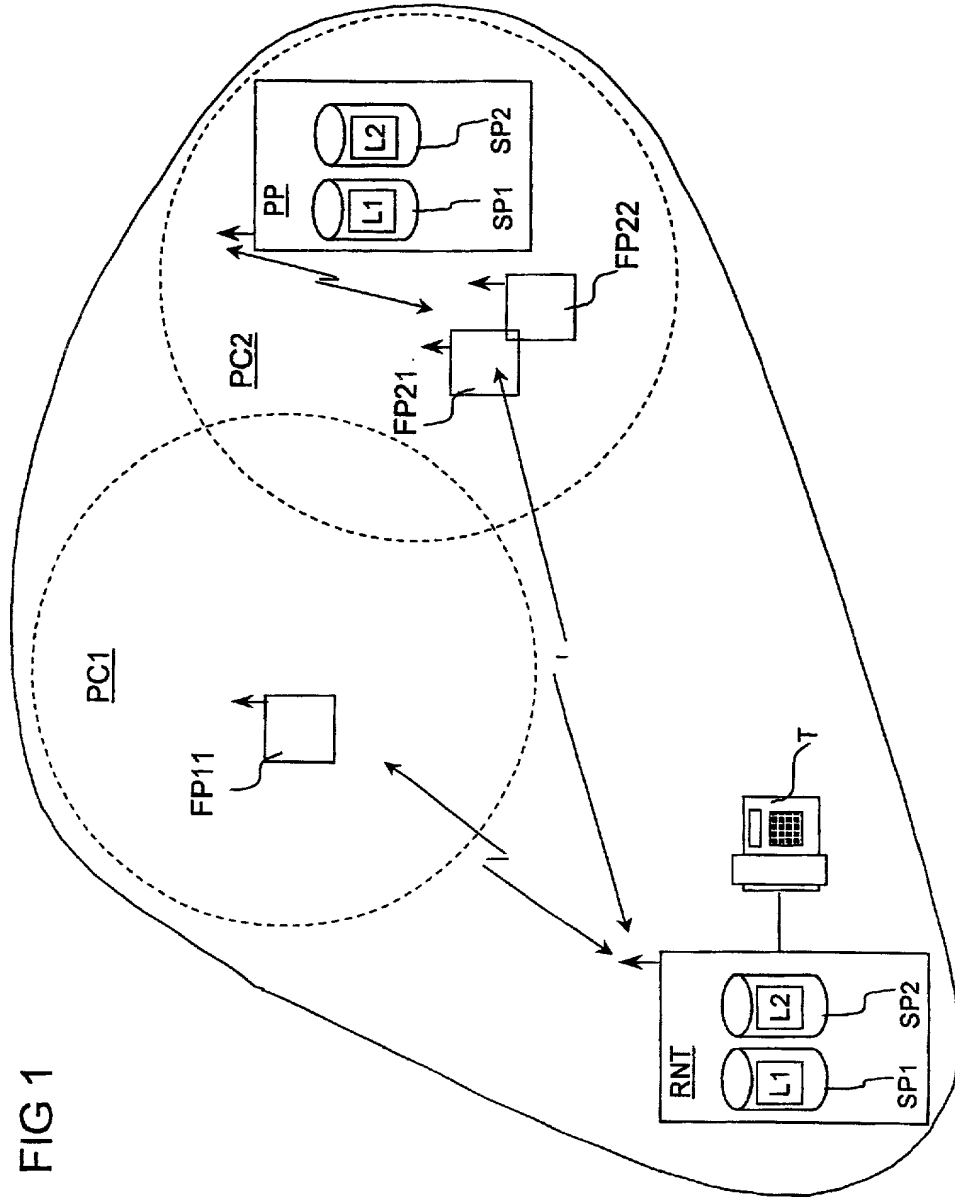


FIG 1

Patent # 4,444,444



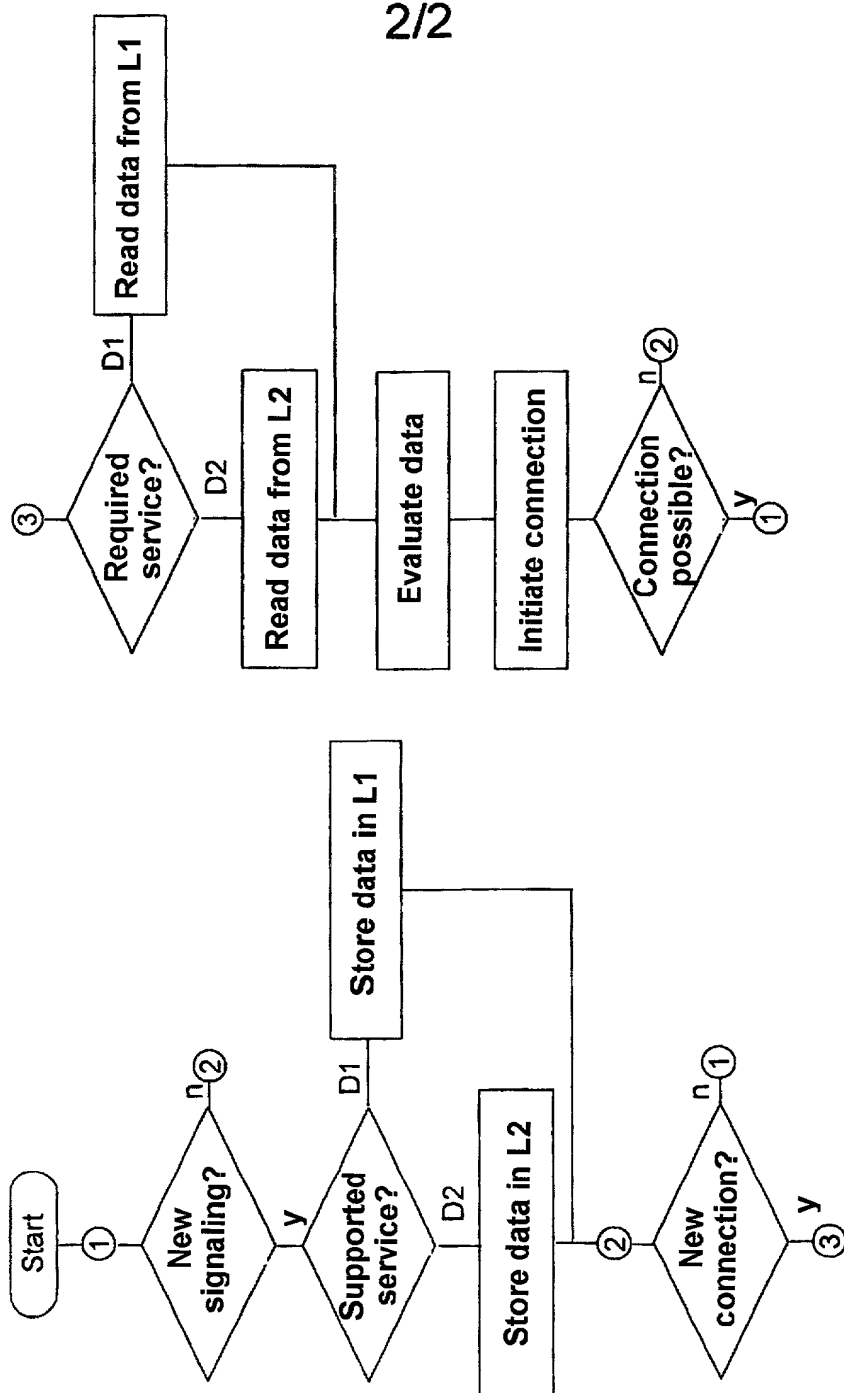


FIG 2

09 / 9 1 4 4 1 4

- 1 -

Method for controlling the selection of base stations in  
a cellular radio telecommunications system

In the terminal equipment domain of telecommunications,  
5 radio paths are becoming increasingly important. Cordless telephones, mobile radio terminals and the wireless connection technology "RLL" (Radio in the Local Loop) or "WLL" (Wireless Local Loop) are well-known examples of this. With the aim of defining a standard  
10 for a high-performance and universal air interface, an air interface known as "DECT" (Digital Enhanced (formerly: European) Cordless Telecommunication) was defined at the instigation of European companies. The DECT standard is described in the documents ETS  
15 (European Telecommunication Standard) 300 175-1, ..., October 9 1992 of the ETSI (European Telecommunication Standards Institute) and is known therefrom.

A DECT system allows up to 120 simultaneous connections  
20 between base stations and mobile units - which are furthermore understood to include not only mobile terminals but also, as, for example in the wireless connection technology "Radio in the Local Loop", stationary system components which communicate with a  
25 base station via an air interface and which include the functional scope of a mobile unit -, whereby up to 10 frequencies between 1.88 and 1.90 GHz are available and up to 12 simultaneous duplex voice connections (time slots, voice channels) can be implemented per frequency.

30 Furthermore, interworking between DECT and "ISDN" (Integrated Services Digital Network) is specified in the DECT standard. Along with the time slots (channels) at 32 kbit/s ("Full Slots") and 8 kbit/s ("Half Slots")  
35 required for voice connections, time slots with a

transmission rate of 64 kbit/s provided to support ISDN are therefore also specified.

Base stations and corresponding mobile units are generally known which, for faster data transmission of, for example, 64 kbit/s or to support DECT/ISDN interworking, support transmission rates of both 32 kbit/s "Full Slots" and 64 kbit/s "Double Slots"; that is to say up to 6 channels with a transmission rate of 64 kbit/s, i.e. a maximum of 2 complete ISDN connections comprising two base channels "B-channel", each at 64 kbit/s, and one control channel "D-channel" at 16 kbit/s, are provided.

"Scanning" of local radio devices to determine free and occupied channels, which is carried out by all DECT devices at least every 30 seconds as a background process, is known from the DECT standard. The information determined in this way is stored in a list known as the RSSI ("Received Signal Strength Indication") list, where free channels with little interference are identified by high values and occupied channels with substantial interference are identified by low values - for subsequent selection. If a radio cell is supplied with radio resources by two base stations, or if these base stations partially cover a common radio coverage area (overlapping of radio cells), whereby the first base station supports only "Full Slots" and the second base station both "Full Slots" and "Double Slots", a mobile station which supports "Full Slots" and also "Double Slots" and which, for example, requires the voice transmission service, i.e. a transmission rate of 32 kbit/s ("Full Slots"), requires a facility to determine which base station provides this service.

35

In terms of a universal telecommunications system "Universal Mobile Telecommunication System" UMTS, it is also conceivable for two base stations to supply two

different

THE UNIVERSITY OF CHICAGO

telecommunications systems, for example a first base station supplies a DECT radio area and a second base station supplies a "Global System for Mobile" GSM radio area, whereby the radio coverage areas totally or  
5 partially overlap each other for the implementation of the UMTS. Mobile units which support both systems therefore similarly require a facility to distinguish between these base stations.

10 The object of the invention is therefore to indicate a method for controlling the selection of base stations in a cellular radio telecommunications system, in which the radio transmission resources made available in the radio telecommunications system, in particular in an RLL or  
15 WLL system, are effectively used.

This object is achieved by the features of claim 1.

In the method according to the invention - according to  
20 claim 1 - connection-relevant data are stored in at least one memory in at least one radio cell of a cellular radio telecommunications system by at least one radio device which supports at least one first service and one second service. Base stations signal which  
25 services they respectively support. Primary data records of base stations, which signal the support of the first service, are stored by the radio device in a first list, and secondary data records of base stations, which signal the support of the second service, are stored in  
30 the second list. The connection-relevant data are therefore stored in the lists, separated according to services. If the signaling changes, the lists are updated accordingly - claim 1.

35 An essential advantage of the method according to the invention is the storage, separated according to supported services, of the

data of a plurality of base stations, which offer themselves as alternatives for the support of a specific service.

5 An essential advantage of the further development according to claim 2 is the guarantee that a connection is set up to the base station with the best transmission characteristics.

10 An essential advantage of the further development according to claim 3 is a simplification of the method, since the structuring of the list is carried out independently of measurements of the base stations.

15 The essential advantage of the further development according to claim 4 is the simple and low-cost implementation of the method, since no additional measurements or data evaluation are required in order to determine the sequence of data records within a list.

20 An essential advantage of the further developments according to claim 5 (without pause time) and claim 6 (with pause time) is the guarantee that a connection is set up.

25 Further advantageous designs of the invention are indicated in the remaining subclaims.

30 An embodiment of the invention is explained with reference to FIGURES 1 and 2, in which:

FIGURE 1 shows a radio telecommunications system with base stations, mobile stations and a network termination designed as a mobile station,

35 FIGURE 2 shows a flow diagram of the method for selecting base stations in the radio

telecommunications system according to FIGURE  
1.

2025-11-11 11:11:11

FIGURE 1 shows a telecommunications system designed as a DECT system with radio cells PC1 and PC2 designed as picocells. Information is transmitted in each case via a DECT air interface designed according to the DECT standard, via which the "DECT radio channel" wireless transmission medium is accessed through a combination of FDMA, TDMA and TDD access methods (Frequency Division Multiple Access / Time Division Multiple Access / Time Division Duplex). Ten carrier frequencies, each with a channel spacing of 1.728 MHz, are available in the frequency range between 1880 MHz and 1900 MHz (FDMA), whereby the time frame defined for each carrier is divided up into 24 time slots or channels (TDMA).

For transmitting voice data, DECT fixed parts FP11, FP21, FP22 use time slots with a transmission rate of 32 kbit/s (Full Slot), corresponding to a first service D1. Time slots with a transmission rate of 64 kbit/s, corresponding to the second service D2 (Double Slot), are used by the DECT fixed part FP22 above all for the transmission of packet data. A radio network termination RNT to which a telephone T is connected and a DECT mobile part PP can be connected in a wireless manner to the DECT fixed parts FP11, FP21, FP22 via the DECT air interface. The DECT mobile part PP and the radio network termination RNT similarly support the first service D1 of the DECT system and the second service D2 of the DECT system. The DECT mobile part PP and the radio network termination RNT store connection-relevant data of the DECT fixed parts FP11, FP12, FP21, FP22, which use "Full Slots", as primary data records in the form of a first list L1 in a first memory SP1 and connection-relevant data of the DECT fixed parts FP11, FP12, FP21, FP22, which use "Double Slots", as secondary data records in the form of a second list L2 in a second memory SP2.



Alternatively, it is also possible for the data records or lists L1, L2 to be stored in a single memory.

5 An alternative embodiment of the radio telecommunications system from FIGURE 1 is provided if the first service D1 is made available within a first radio cell, which, for example, has a radio range according to the DECT standard, and the second service D2 is made available within a second radio cell which, 10 for example, has a radio range according to the GSM standard, whereby the DECT radio coverage area is partially or fully covered by the GSM radio coverage area in order to enable the implementation of a universal telecommunications system, for example UMTS. 15 In this embodiment, the case may occur wherein the type of data in the first service D1 and in the second service D2 are the same, for example voice data, but differ in terms of the different radio ranges of the radio cells in which they are made available. The 20 primary and secondary data records are then stored according to the radio ranges in the first list L1 or the second list L2.

In the event that the types of data transmitted in the 25 first service D1 and in the second service D2 differ from one another (e.g. first service D1: voice data, second service D2: packet data) and are made available in radio cells with different radio ranges, the primary and secondary data rates can be stored in the first list 30 L1 or second list L2 according to the radio range or on the basis of the service D1, D2 which is provided.

In FIGURE 2, the method for selecting base stations is described with reference to a flow diagram, said method 35 being carried out in an arrangement according to FIGURE 1 between the DECT fixed parts FP11, FP21, FP22, the DECT mobile part PP and the radio network termination RNT.

In the initial condition, first DECT fixed parts FP21, FP22 signal to the DECT mobile part PP and the radio network termination RNT which service D1, D2 they support. In addition, the radio network termination RNT receives the signaling of the supported service D1, D2 from the second DECT fixed part FP11. In the DECT mobile part PP and the radio network termination RNT, a check is first carried out to ascertain whether signaling has taken place, i.e. whether an update of the relevant list(s) L1, L2 is required.

If this is the case, the primary data records from the DECT fixed parts FP11, FP21, FP22 signaling the support of the first service D1 are stored in the form of the first list L1 in the memory SP1, SP2 and/or secondary data records from the DECT fixed parts FP11, FP21, FP22 signaling the support of the second service D2 are stored in the form of the second list L2 in the memory SP1, SP2. The sequence of the data records stored or to be stored in the lists L1, L2 is derived from the sequence in which the signaling is received.

Alternatively, the data records stored or to be stored can be arranged within the list L1, L2, according to transmission characteristics of the corresponding DECT fixed parts FP11, FP21, FP22, or according to ordering criteria based on the type of data records stored or to be stored, e.g. alphabetically or numerically.

If this is not the case, i.e. an update is not required, a connection request is expected.

If the DECT mobile part PP or the radio network termination RNT wishes to set up a telecommunications connection, a first data record of the primary or

secondary data record is in each case read from the relevant list L1, L2 in order to initiate the connection set-up according to the required service D1, D2. The associated DECT fixed part FP11, FP21, FP22 is then  
5 determined from the data record and the connection to this DECT fixed part FP11, FP21, FP22 is set up. If this connection is not established, a second (further) data record of the primary or secondary data records is read from the relevant list L1, L2 and a connection  
10 initiation is started. If no further data record exists within the list L1, L2, the procedure restarts with the first data record of the list L1, L2.

Alternatively, if no further data record exists,  
15 following a predefined pause time, during which the telecommunications connection set-up is temporarily impossible (e.g. interruption of the telecommunications connection set-up), the procedure can restart with the first data record.

TELEFON

## Claims

1. A method for controlling the selection of base stations in a cellular radio telecommunications system with the following features:
- 5 a) In at least one radio cell (PC1, PC2) of the radio telecommunications system, at least one base station (FP11, FP21, FP22) and at least one radio device (PP, RNT) are operated for the purposes of wireless telecommunication,
  - 10 b) the radio device (RNT; PP) supports at least one first service (D1) and one second service (D2),
  - c) the radio device (RNT; PP) stores connection-relevant data in at least one memory (SP1, SP2),
  - 15 d) base stations (FP11, FP21, FP22) signal to the radio device (RNT, PP), in system information, which service (D1, D2) they support,
  - e) the radio device (RNT, PP) stores primary data records of the base stations (FP11, FP21, FP22) in the form of a first list (L1) in the memory (SP1, SP2), if the base stations (FP11, FP21, FP22) signal to the radio device (PP; RNT) in the system information that they support the first service (D1),
  - 20 f) the radio device (RNT, PP) stores secondary character sets of the base stations (FP11, FP21, FP22) in the form of a second list (L2), if the base stations (FP11, FP21, FP22) signal to the radio device (PP; RNT) in the system information that they support the second service (D2),
  - 25 g) the radio device (RNT, PP) updates the first list (L1) and/or the second list (L2) if the data of the base stations (FP11, FP21, FP22) are modified.
  - 30

2. The method as claimed in claim 1,  
characterized in that

the data records of the base stations (FP11, FP21, FP22)  
stored or to be stored in the lists (L1, L2) are  
5 arranged according to transmission characteristics of  
the base stations (FP11, FP21, FP22).

3. The method as claimed in claim 1,  
characterized in that

10 the data records of the base stations (FP11, FP21, FP22)  
stored or to be stored in the lists (L1, L2) are  
arranged at least according to an ordering criterion,  
the respective ordering criterion being based on the  
type of data stored or to be stored.

15 4. The method as claimed in claim 1,  
characterized in that

the data records of the base stations (FP11, FP21, FP22)  
stored or to be stored in the lists (L1, L2) are  
20 arranged in the sequence of their occurrence.

5. The method as claimed in one of the previous claims,  
characterized in that

a) the radio device (PP; RNT) reads out a first data  
25 record of the primary data records when it sets up a  
telecommunications connection to the base station  
(FP11, FP21, FP22) which supports the first service  
(D1),

b) the radio device (PP; RNT) reads out a first data  
30 record of the secondary data records when it sets up a  
telecommunications connection to the base station  
(FP11, FP21, FP22) which supports the second service  
(D2),

c) the radio device (RNT, PP), if the connection set-up  
35 fails, reads out a second data record of the primary  
or secondary data records in the relevant list (L1,

L2) and sets up a connection to the corresponding base station (FP11, FP21, FP22),

- 5 d) the radio device (RNT, PP), if no connection has yet been set up and the second data record was the last data record in the respective list (L1, L2), restarts the read-out of the first data record of the list (L1, L2).

10 6. The method as claimed in one of the previous claims, characterized in that

- 15 a) the radio device (PP; RNT) reads out a first data record of the primary data records when it sets up a telecommunications connection to the base station (FP11, FP21, FP22) which supports the first service (D1),

- 20 b) the radio device (PP; RNT) reads out a first data record of the secondary data records when it sets up a telecommunications connection to the base station (FP11, FP21, FP22) which supports the second service (D2),

- 25 c) the radio device (RNT, PP), if the connection set-up fails, reads out a second data record of the primary or secondary data records in the relevant list (L1, L2) and sets up a connection to the corresponding base station (FP11, FP21, FP22),

- 30 d) the radio device (RNT, PP), if no connection has yet been set up and the second data record was the last data record in the respective list (L1, L2), restarts the read-out of the first data record of the respective list (L1, L2) at the end of a predefined pause time.

7. The method as claimed in one of the previous claims, characterized in that

- 35 the radio device (RNT, PP) is a radio network termination RNT.

8. The method as claimed in one of the previous claims, characterized in that,  
in the case of a plurality of radio cells in the radio telecommunications system, the same radio ranges are  
5 allocated to the radio cells.
9. The method as claimed in claim 8, characterized in that  
the radio telecommunications system operates according  
10 to the DECT standard.
10. The method as claimed in one of claims 1 to 7, characterized in that,  
in the case of a plurality of radio cells in the radio  
15 telecommunications system, different radio ranges are allocated to the radio cells.
11. The method as claimed in claim 10, characterized in that  
20 the radio telecommunications system operates according to the UMTS standard.
12. The method as claimed in claim 10 or 11, characterized in that  
25 a) the same type of data is transmitted in the first service (D1) and in the second service (D2),  
b) the first service and the second service are made available in different radio cells.
- 30 13. The method as claimed in one of claims 1 to 11, characterized in that  
different types of data are transmitted in the first service (D1) and in the second service (D2).

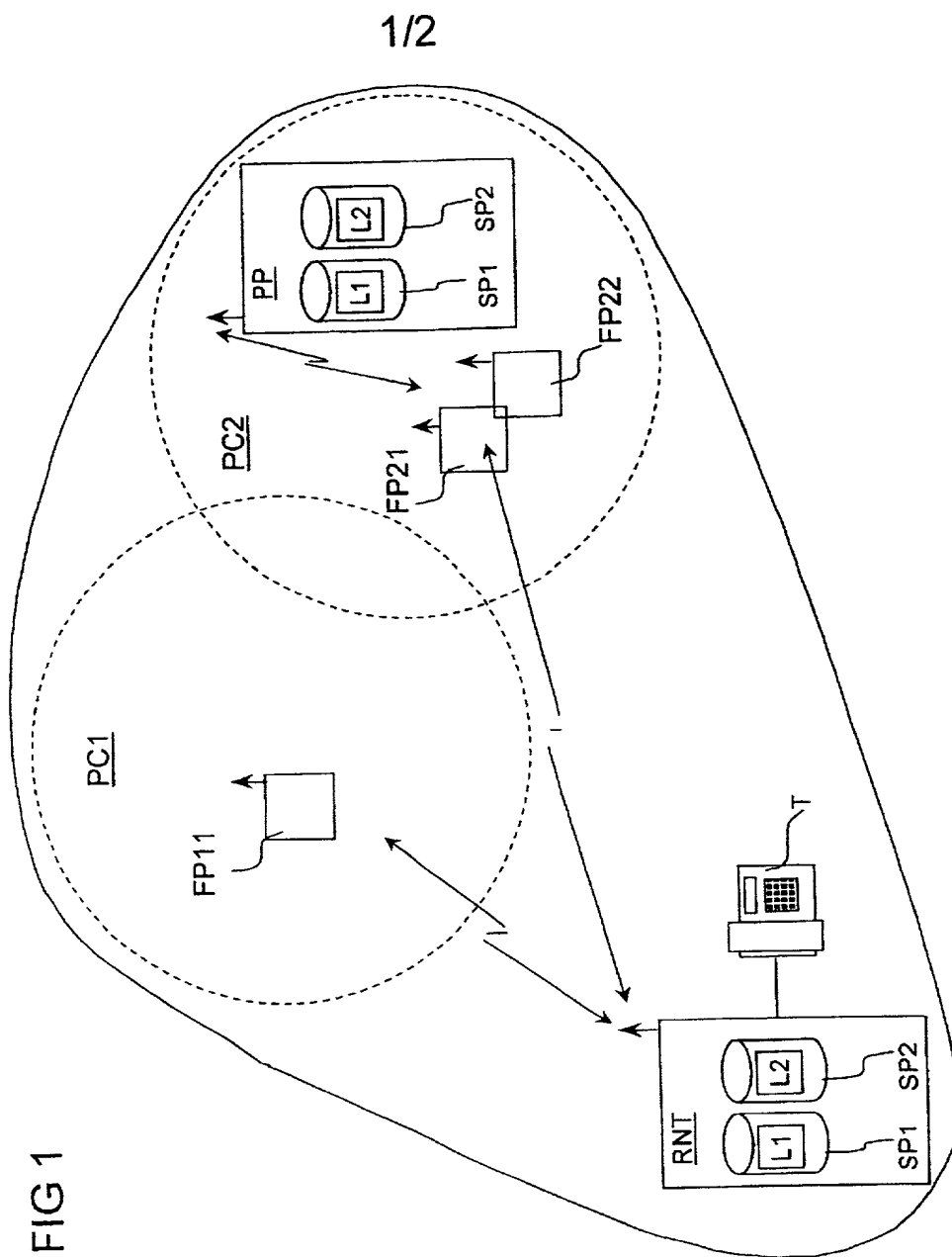
14. The method as claimed in claim 13,  
characterized in that

signals with a transmission rate of 32 kbit/s are transmitted in the first service (D1), and signals with  
5 a transmission rate of 64 kbit/s are transmitted in the second service (D2).

15. The method as claimed in claim 13 or 14,  
characterized in that

10 voice is transmitted in the first service (D1), and  
packet data are transmitted in the second service (D2).





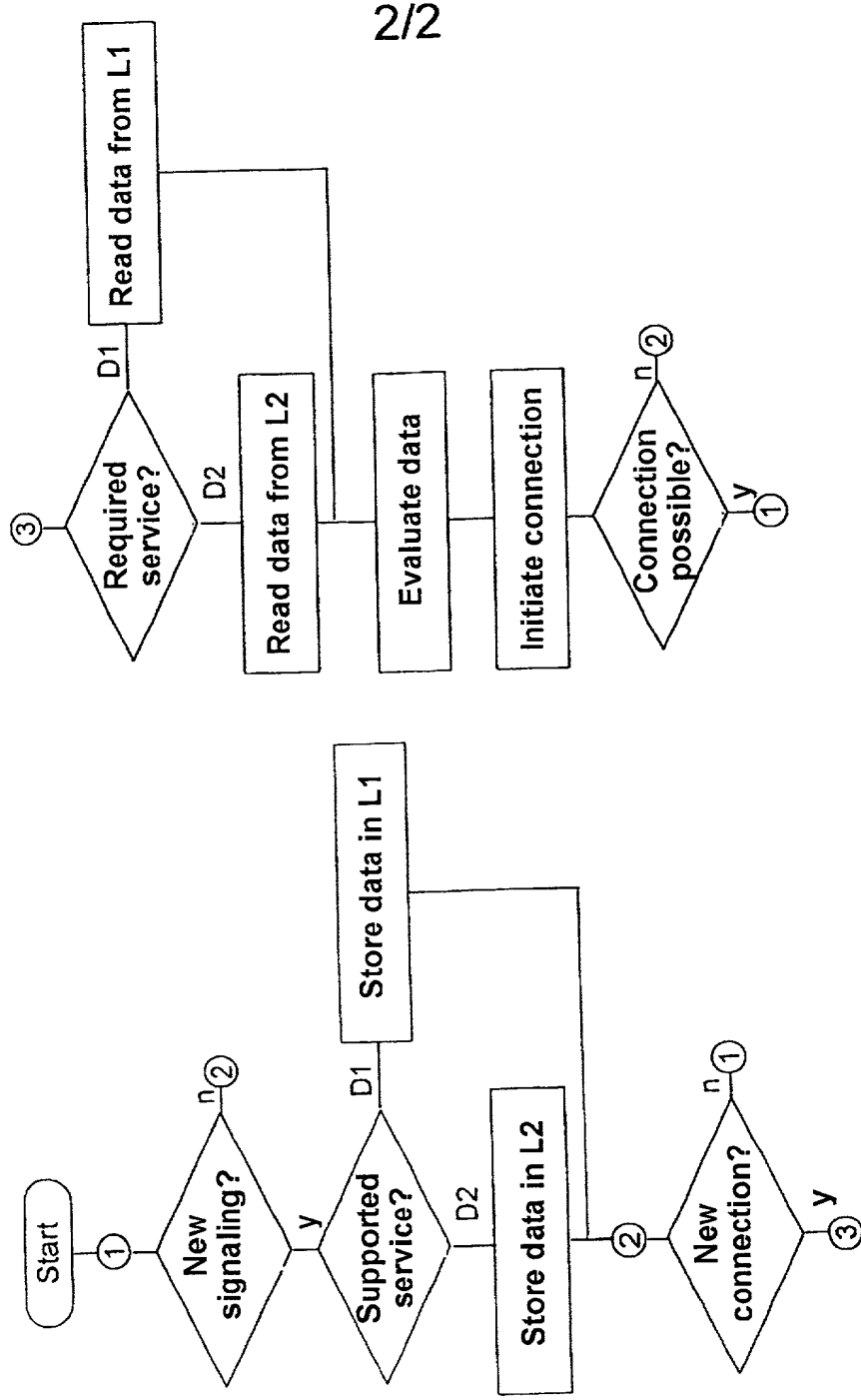


FIG 2

**Combined Declaration For Patent Application and Power of Attorney**  
**(Continued)** (Includes Reference to PCT International Applications) PCT/EP00/00539

 ATTORNEY'S DOCKET NO.  
 112740-270

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

**PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:**
**U.S. APPLICATIONS**

STATUS (Check one)

U.S. APPLICATION NUMBER

U.S. FILING DATE

PATENTED

PENDING

ABANDONED

**PCT APPLICATIONS DESIGNATING THE U.S.**

PCT APPLICATION NO

PCT FILING DATE

 U.S. SERIAL NUMBERS  
 ASSIGNED (if any)


29177

PATENT TRADEMARK OFFICE

**POWER OF ATTORNEY:** As named inventor, I hereby appoint the following attorney(s): Holby M. Abern (P47,372), Robert M. Barrett (30,142), Alan L. Barry (30,819), Thomas C. Basso (46,541), Jeffrey H. Canfield (38,404), Robert W. Connors (46,639), Amy J. Gast (41,773), Timothy L. Harney (38,174), Patricia A. Kane (46,448), Michael S. Leonard (37,557), Edward A. Lehman (22,312), Adam H. Masia (35,602), Dante J. Picciano (33,543), Renato L. Smith (45,117), Maurice E. Teixeira (45,646), William E. Vaughan (39,056), Austin Victor (47,154), and all members of the firm of Bell, Boyd & Lloyd LLC.

Send Correspondence to:

**BELL BOYD & LOYD LLC**  
**P.O. Box 1135**  
**Chicago, Illinois 60690**

Direct Telephone Calls to:

312/807-4292

201

 FULL NAME OF  
 INVENTOR

FAMILY NAME

SCHULZ

FIRST GIVEN NAME

EGON

SECOND GIVEN NAME

 RESIDENCE &  
 CITIZENSHIP

CITY

80993 Muenchen

 STATE OR FOREIGN COUNTRY  
 Germany

 COUNTRY OF CITIZENSHIP  
 Germany

 POST OFFICE  
 ADDRESS

POST OFFICE ADDRESS

Wittenberger Str. 3

CITY

80993 Muenchen

 STATE & ZIP CODE/COUNTRY  
 Germany

202

 FULL NAME OF  
 INVENTOR

FAMILY NAME

FIRST GIVEN NAME

SECOND GIVEN NAME

 RESIDENCE &  
 CITIZENSHIP

CITY

STATE OR FOREIGN COUNTRY

COUNTRY OF CITIZENSHIP

 POST OFFICE  
 ADDRESS

POST OFFICE ADDRESS

CITY

STATE &amp; ZIP CODE/COUNTRY

203

 FULL NAME OF  
 INVENTOR

FAMILY NAME

FIRST GIVEN NAME

SECOND GIVEN NAME

 RESIDENCE &  
 CITIZENSHIP

CITY

STATE OR FOREIGN COUNTRY

COUNTRY OF CITIZENSHIP

 POST OFFICE  
 ADDRESS

POST OFFICE ADDRESS

CITY

STATE &amp; ZIP CODE/COUNTRY

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201

SIGNATURE OF INVENTOR 202

SIGNATURE OF INVENTOR 203

DATE

8/11/01

DATE

DATE

**COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY**  
 (Includes Reference to PCT International Applications) PCT/DE00/00539

 ATTORNEY'S  
 DOCKET NUMBER  
 112740-270

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**METHOD FOR CONTROLLING THE SELECTION OF BASE STATIONS IN A CELLULAR RADIO  
 TELECOMMUNICATION SYSTEM**

the specification of which (check only one item below):

- ☐ is attached hereto.
- ☐ was filed as United States application  
 Serial No. 09/914,414  
 on August 27, 2001  
 and was amended  
 on \_\_\_\_\_ (if applicable).
- ☐ was filed as PCT international application  
 Number \_\_\_\_\_  
 on \_\_\_\_\_  
 and was amended under PCT Article 19  
 on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

**PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:**

COUNTRY (if PCT indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
Germany	19908479.3	26 February 1999	<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
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			<input type="checkbox"/> YES <input type="checkbox"/> NO